

WHAT IS CLAIMED IS:

1. An objective lens drive for adjusting the tilt of an optical axis of an objective lens to be used for radiating light onto a recording medium, the drive comprising:

a lens holder for holding said objective lens;

a suspension which is at one end thereof fixed to said lens holder and which supports said lens holder in a cantilever fashion;

a suspension holder for supporting the other end of said suspension; and

a plurality of multilayer piezoelectric elements which support both side surfaces of said suspension holder and rotate said suspension holder about an axis extending in a direction in which said suspension extends.

2. The drive according to claim 1, further comprising:

a guide pin for axially supporting said suspension holder in the direction in which said suspension extends.

3. The drive according to claim 1, further comprising:

a hinge mechanism for supporting a lower section of said suspension holder.

4. The drive according to claim 3, wherein

a recessed section is formed in the lower section of said suspension holder; and

said hinge mechanism is housed within said recessed section, and an interior surface of said recessed section supports said suspension holder.

5. The drive according to claim 1, wherein

said suspension supports said lens holder in a cantilever fashion so that the holder is movable in focusing and tracking  
5 directions; and

said multilayer piezoelectric element extends in a direction substantially perpendicular to the direction in which said suspension extends, to thereby support said suspension holder.

10 6. The drive according to claim 1, wherein said multilayer piezoelectric element is formed by stacking a plurality of layers in the focusing direction.

7. The drive according to claim 1, wherein said multilayer  
15 piezoelectric element is a piezoelectric element of bimorph type in which layers are stacked in the focusing direction.

8. The drive according to claim 1, wherein

said suspension has a plurality of suspension elements which  
20 laterally support said lens holder at two different heights in a cantilever fashion; and

said multilayer piezoelectric element supports said suspension holder at a height which is substantially halfway between said two different heights.

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9. The drive according to claim 1, further comprising:

drive means for causing displacements in opposite directions by supplying a drive voltage to a plurality of said multilayer piezoelectric elements.

10. The drive according to claim 9, wherein said drive means actuates a plurality of said multilayer piezoelectric elements that are to become displaced in opposite directions, to thereby rotate  
5 said suspension holder about an axis extending in the direction in which said suspension extends.

11. An objective lens drive for adjusting the tilt of an optical axis of an objective lens to be used for radiating light onto a  
10 recording medium, the drive comprising:

a lens holder for holding the objective lens;

a plurality of suspensions which are at one end thereof fixed to right and left sides of said lens holder, support said lens holder in a cantilever fashion, and are provided so as to extend in a direction  
15 perpendicular to focusing and tracking directions;

a suspension holder for supporting the other end of the plurality of said suspensions;

a pair of piezoelectric elements which attach said suspension holder to a carriage, which are fixed at one end thereof to said  
20 carriage and at the other end thereof to an end section of said suspension holder, and which are provided so as to extend in the tracking direction; and

axial support means for axially supporting said suspension holders so that the suspension holder is rotatable in a radial direction  
25 of said recording medium, wherein torque is applied to said suspension holder by means of displacement of said pair of piezoelectric elements, so that said suspension holder is rotated in the radial direction of said recording medium.

12. The drive according to claim 11, wherein said axial support means is a guide pin which axially supports said suspension holder on said carriage along the direction in which said suspension extends.

5 13. The drive according to claim 11, wherein said axial support means is a hinge for supporting a lower section of said suspension holder along the direction in which said suspension extends.

14. An optical disk drive, comprising:

10 a lens holder for holding an objective lens to be used for converging a laser beam on an optical disk;

a suspension which is at one end thereof fixed to said lens holder and supports said lens holder in a cantilever fashion;

15 a suspension holder for supporting the other end of said suspension;

a plurality of multilayer piezoelectric elements which support both side surfaces of said suspension holder, to thereby make said suspension holder rotatable about an axis extending in a direction in which said suspension extends; and

20 a tilt sensor for detecting the direction and magnitude of a tilt made between said optical disk and an optical axis of said objective lens, wherein

a plurality of said multilayer piezoelectric elements are actuated in accordance with the magnitude and direction of tilt  
25 detected by said tilt sensor to thereby cause displacement in opposite directions, whereby said tilt is corrected by means of said displacement.